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**THE LONG-TERM EFFECTS OF JOB MOBILITY ON THE ADULT EARNINGS
OF YOUNG MEN:**

EVIDENCE FROM INTEGRATED EMPLOYER-EMPLOYEE DATA

by

Javier Miranda*
U.S. Bureau of the Census

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THE LONG-TERM EFFECTS OF JOB MOBILITY ON THE ADULT EARNINGS OF YOUNG MEN: EVIDENCE FROM INTEGRATED EMPLOYER-EMPLOYEE DATA

Javier Miranda
Center For Economic Studies, US Census Bureau *

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Abstract

The paper follows a population of 18-year-old men to examine the impact that early job mobility has on their earnings prospects as young adults. Longitudinal employer-employee data from the state of Maryland allow me to take into consideration the endogenous determination of mobility in response to unobserved worker as well as firm characteristics, which may lead to spurious results. The descriptive portion of the paper shows that mobility patterns of young workers differ considerably with the characteristics of the firm; however, growth patterns are not significantly different on average. Workers employed in high-turnover firms (such as those in retail and services) experience more job turnover but similar rates of wage growth compared to workers employed in low turnover firms (such as those in manufacturing); however, their wage levels remain below and the wage gap actually increases over time. Regression results controlling for unobservable show that employers in the low-turnover sector discount earnings of workers who displayed early market mobility. By contrast, I find no evidence that mobility has negative effects for workers that remain employed in the high turnover sector.

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1 Introduction

The past several decades have seen the rapid development and diffusion of new technologies in the workplace as well as the emergence of a competitive global market. This is prompting concerns that some workers are being left behind; that the traditional blue-collar jobs that were once the source of good career earnings paths are being replaced by dead-end high-turnover service and retail jobs. This idea is popularized in the image of a young man flipping burgers at a fast food joint working for a meager wage at a job that offers no benefits and few opportunities for job or career advancement. Despite these notions, our knowledge of the impact that employment in these types of firms and industries has on the long-term earnings prospects of young workers remains limited and highly speculative. This paper seeks to contribute some facts to the discussion. In the paper I present evidence of the complex nature of the links between the early labor market experience and career earnings growth of young men. I address several questions. In particular, how does mobility contribute to career earnings growth for workers employed in high and low turnover firms? What are the long-term effects of early labor market mobility on the adult earnings of similar workers? Are there scarring effects on adult earnings attributable to early mobility and the type of employer?

Previous studies that have explored these questions have typically relied on survey data to describe the average impact that job mobility has on the long-term earnings prospects of various groups of workers. However, these studies do not adequately take into consideration the endogenous determination of mobility in response to unobserved worker as well as firm characteristics, which may also influence adult earnings. For instance, job mobility might be correlated with an individual's unobserved ability, skills or drive as well as with the quality of the job match. High ability workers might be less mobile than low ability workers and workers that find a good job-match early on are less likely to leave that job. In as much as these traits are correlated with earnings then failing to account for them will lead us to confound the effects of job stability with returns to ability or job-match quality.

The importance of understanding the returns from holding a steady job versus the return from switching jobs is evidenced by two contrasting views of the effects that turnover has for workers. One view is based on the belief that the early labor market experience of youths in the United States is often characterized by "churning" through a series of low wage, dead-end jobs [Stern et al. (1990), Glazer (1993)]. This characterization of U.S. labor markets has motivated policy initiatives to facilitate the transition into steady jobs of young workers.¹ The underlying assumption is that early labor market instability may prevent workers from developing the skills or behaviors that might lead to better jobs and higher earnings. This represents a waste of human capital because workers fail to reach their potential later in life.²

¹See Hamilton (1990), Lerman and Pouncy (1990) and Glazer (1993) among others.

²Gardecki and Neumark (1998), Neumark (1998) and Light and McGarry (1998) among others find empirical evidence that early instability leads to lower earnings as adults.

An alternative view is presented by numerous empirical studies that show that, on average, mobility provides significant returns in the form of higher earnings of young workers [Topel & Ward (1992), Hall (1982), Murphy & Welch (1992)]. These studies provide evidence that through the job search process workers can gain knowledge about their aptitudes, skills and interests that lead to better job matches as they move from job to job. According to this view of the world, the best way to succeed in the labor market is to join it and higher wages will come from the experience of working and moving up the job ladder.

In this paper, I address the endogeneity between mobility and earnings by using an integrated employer employee data set containing longitudinal information on young male workers as well as their employers. These data allow me to control for worker and firm unobservable factors in order to ascertain whether job stability has long-term consequences on the adult earnings of workers. Information on the turnover characteristics of the employers allows me to examine whether these effects differ by sector of employment. The descriptive portion of the paper expands on previous work by Topel & Ward (1992). In this section I describe the long-term earnings prospects of workers as a function of the turnover characteristics of the sector of employment. I decompose earnings growth into a component due to job transitions and a component due to the accumulation of tenure and experience. The study of these questions is relevant to our understanding of youth labor markets and may help inform the development of policy initiatives that are designed to help the transition into steady jobs of the most vulnerable workers.

The rest of the paper is structured as follows. In section 2, I describe the construction of the data and measurement issues. In section 3, I examine differences in earnings growth patterns. I decompose earnings growth from job transitions and those from cumulative tenure and experience. Differences across high and low turnover sectors of employment are also examined. Section 4 follows with a description of a model of adult earnings that is a function of contemporaneous characteristics as well as prior mobility and experience. Section 5 presents results from estimating this model first by OLS and then in a two-step procedure to account for worker and firm unobservable characteristics. Section 6 provides summary and conclusions.

2 The Data

The data I use in the analysis are drawn from the universe of administrative unemployment insurance (UI) earnings records for the state of Maryland. A key feature of these data is that they contain the earnings histories of Maryland workers covered by the unemployment insurance system broken up by employer. This includes practically all non-farm wage and salaried workers on private employment (roughly 97.1%). The only exceptions are self-employed, employees of certain nonprofit organizations, or individuals who work on family farms or

as seasonal or migrant farm workers.³ Demographic information includes age, gender and race. Business information includes a 4-digit SIC code and computed measures of total employment and turnover rates. The data do not include measures of hours worked so it is not possible to compute a wage measure. In the analysis I follow Topel & Ward (1992) and compute measures of total quarterly earnings.⁴

2.1 Sample Characteristics and Measurement Issues

The UI files contain quarterly earnings information for over 1.8 million Maryland workers and over 90,000 employers every quarter. The data begin in the second quarter of 1985 and end in the second quarter of 1997.

In order to examine the effects that early market mobility has on adult earnings, I select from this sample only workers observed entering the labor market at or before age 18. There are 381,396 such men in the data. On average, the labor market experience of this group of workers is characterized by rapid turnover, short-time jobs and periods of non-employment. For example, the average worker holds 6.27 jobs during the first nine years after entry into the labor market with the average job lasting less than two quarters.

I further restrict the sample only to those workers with a minimum of seven years of potential earnings data. This reduces sample size considerably but ensures that I am able to reconstruct the job histories of workers from the time they first enter the labor market all the way through age twenty-five. The presumption is that the combined seven-year window is sufficiently long as to observe many individuals' transitions from their earliest entrance into the labor market into somewhat steadier employment as adults [Osterman (1980)]. Ideally I would like to track workers for a longer period of time since earnings do change considerably after age twenty-five; however, data considerations prevent me from doing so. While this is a limitation of the paper it is unlikely to change results significantly given that on average earnings growth from mobility has slowed considerably at this point for this group of workers [Topel & Ward (1992)]. For the selected sample I compute employment histories based on information for the first five years after entry while their impact is evaluated two years after that.

Table 1: : Characteristics of Selected and Full Sample

	Full Sample	Pre 1991 Entry	Jobs Paying 70+% of FQ MW	Selected Sample
	(1)	(2)	(3)	(4)
Number of Workers	381,396	127,682	46,893	11,983
Average Number of Jobs	6.2	6.5	5.17	3.1
Percent Black	25.8%	26.5%	26.1%	16.6%
Average Earnings at Entry	\$720	\$698	\$1084	\$2,776

Source: Own Calculations from MD UI.

³From Employment and Wages, Annual Averages 1999. Bureau of Labor Statistics, U.S. Department of Labor, annual bulletin.

⁴I do not attempt to disentangle the relative contribution that changes in the amount of labor supplied and hourly wage rates have on total earnings growth over time.

By construction, I end up with five different entry cohorts; the first includes 1985-1986 entrants while the last includes 1989-1990 entrants. Table 1 describes the characteristics of the selected sample, column 4, against the full sample, column 1. A large proportion of workers in the full sample, approximately 67%, are dropped simply because they enter the labor market after 1990. By definition, these workers cannot accumulate seven years of potential market experience since they are at best last observed in 1997.

For the remaining workers it is not uncommon to observe long non employment gaps and extremely low earnings jobs [column 2]. Individuals that work on a temporary or part-time bases contribute to rapid movements in and out of the population of workers and low earnings jobs on average. Students working part-time part-year also have spotty earnings histories. Workers that enter non-covered employment, such as the federal government, military personnel or independent contractors, or that find work out of state will not have earnings information while engaged in these activities. In general, individuals moving in and out of unemployment will be relatively mobile and exhibit relatively low earnings.

Unfortunately it is not possible to determine with the available data whether a gap in the jobs history is due to unemployment, schooling or non-covered employment. Similarly, it is not possible to determine the duration of a job within any given thirteen-week period. To minimize the effects that these unobservable have on earnings estimates I drop workers with non-employment gaps that last more than nine consecutive months, and smooth over jobs lasting less than a full quarter. I also smooth over jobs paying less than 70% of the full quarter minimum wage. Finally, I keep workers for which I have a minimum of nine observations that reach this minimum wage limit. These restrictions eliminate another 21% of the original sample.

To get a sense for the effects that these restrictions have on the selected sample I impose similar restrictions on a sample of young male workers from the CPS data. I select only individuals living in Maryland between the ages of 18 and 25 from the 1994 through 1997 CPS March files. The restrictions affect blacks, dropouts and full-time students disproportionately. In particular, blacks are 1.4 times more likely to be out of the labor market for more than nine months than whites. Blacks are also 1.8 times more likely to work part-time and thus earn less than 70% of the full quarter minimum wage than whites. Dropouts are 2.3 times more likely to be out of the labor market for more than nine months than high school graduates. Full-time students are 2.2 times more likely to be out of the labor market for more than nine months than part-time students. However, students attending college, whether full or part-time, are 1.3 times more likely to work more than 3 months than individuals in the general population.

The final UI sample includes 11,983 workers and 34,478 jobs. On average, this sample is significantly less black than the average for the 1985-1997 demographic of 18-year-old, 17% versus 26%. As expected the selected sample earns considerably more per quarter at time of entry into the labor market. This is

mostly a result of smoothing over short duration jobs and jobs paying less than 70% of the full-time full-quarter minimum wage.

Selection based on the length of labor market participation is a concern with these data. The economic cycle is likely to affect participation rates and these effects are likely to differ by race and by unobservable characteristics such as ability or drive. In addition, workers with unusually long periods of non-employment may have experienced below average wage increases or below average job matches. By excluding these workers I am likely to underestimate the negative effects that mobility has on adult earnings. Unfortunately, I cannot compute some of the key variables used in the analysis for these workers because there is no way of knowing which are truly non-employed and which are temporarily employed in non-covered activities. However, I can examine the sensitivity of results to sample selection generated by shifts in demand by examining the effects that Maryland's unemployment rate has on adult wages and by examining results for different entry cohorts.⁵ I also attempt to minimize the effects of sample selection by constructing population weights based on race and the year and quarter of initial entry into the labor market. As a result of this weighting scheme the proportion of black workers increases to 26.9% however average earnings remain largely unchanged. With this said, readers should interpret results as an upper bound on the effects that mobility has on adult earnings.⁶

2.2 Characterizing Employers: High and Low Turnover Sectors

With these caveats in mind, my first goal is to characterize the employment history for the selected sample of workers during their early market history and as they transition into early adulthood. In particular, I examine the characteristics of early labor market experiences that are related to job stability such as the number of jobs held, the longest job held and the total time spent in non-employment. The number of jobs held is the cumulative number of full-quarter jobs held by the individual during the first five years after entry. The longest job held is defined as the highest tenure job (in quarters) held during that time. This measure is computed from actual job tenure. Finally, total non-employment spells are the cumulative measure of all periods of non-employment over the same period of time. I compute these measures based on the early market experience of each individual worker.

I am also interested in characterizing the type of employment history based on two employer characteristics: their type of activity as measured by SIC codes and their worker-turnover flows. The analysis of these two characteristics of the employer implies that worker's job histories can follow one of four patterns.

⁵Neumark (1998) uses unemployment rates in the immediate post entry period as an instrument for job stability.

⁶Ideally, I would like to estimate a selection equation to control for the shadow wages of the non employed. However, correcting for selection into employment is not possible given the limited amount of demographic information in the data.

Some workers will find their first job in a high-turnover sector; presumably, in a firm that offers low-wages and little job stability. Of these, some will successfully transition into presumably higher-paying, more stable jobs in the low-turnover sector but the rest will continue to work in the high-turnover sector. By contrast, other workers will find their first job in a low-turnover sector; presumably, in firms that offer high-wages and job stability. Of these, some will continue to hold the same types of jobs while others transition to the high-turnover sector.

In following this strategy there are several aspects that require further discussion. First, measures of worker turnover are defined at the level of the firm as in Burgess, Lane and Stevens (1999). More specifically, I use longitudinal firm and worker level data to compute a measure of worker turnover net of job turnover, churning, for every employer in any given quarter. This measure is used to classify employers in the high or low-turnover sector. Employers in the top half of the distribution of worker flows are assigned to the high-turnover sector while those in the bottom half are assigned to the low-turnover sector.

Table 2: : Average Firm Characteristics: by Major Industrial Sector

Industry	Average Churning Rate	Average log Earnings	Average Job Duration (in quarters)	Proportion of Firms in Low Churn Sector
	(1)	(2)	(3)	(4)
Eating/drinking estabs	0.467	8.178	5.7	0.055
Hotel srv	0.396	8.141	4.9	0.053
Movies-rec srv	0.335	8.323	6.5	0.168
Agriculture	0.320	8.438	7.6	0.248
Retail	0.272	8.431	7.5	0.254
Construction	0.246	8.561	8.5	0.335
Transportation	0.233	8.630	8.9	0.374
Personal srv	0.225	8.487	8.9	0.396
Business srv	0.222	8.571	7.2	0.438
Other services	0.216	8.576	7.6	0.468
Health srv	0.178	8.425	8.5	0.427
Fire	0.177	8.514	8.1	0.471
Public utilities	0.175	8.780	15.8	0.660
Nondurables	0.172	8.615	9.7	0.504
Wholesale	0.171	8.572	9.3	0.481
Communication	0.167	8.674	8.8	0.472
Education srv	0.148	8.488	12.3	0.574
Durables	0.145	8.578	10.4	0.607
Mining	0.134	8.671	11.0	0.638
Administration	0.107	8.577	13.3	0.750

Source: Own calculations from UI data.

Table 2 describes average firm characteristics that result from this classification by major industrial sector. The table sorts industries by the turnover rate of the average firm in that industry. At the top are industries with the highest average turnover rates. At the bottom are industries with the lowest average turnover rates. As expected, high-turnover firms are typically found in services, agriculture, retail and construction. Jobs in these industries are relatively short and pay relatively low wages. By contrast, low-turnover firms are

typically found in manufacturing (durables and non durables), communication and wholesale. Jobs in these industries are relatively long lived and pay relatively high wages. Table 2 also shows that there is considerable within industry variation. In particular, firms in business services, personal services, health services and finance insurance and real state are about as likely to be high or low turnover.

Having classified firms in the high or low turnover sector, I then want to characterize the job history of individual workers by type of entry and whether they change sector of employment. Obviously the data will not show that individual job histories follow neatly into simple categories. In some cases we will observe movements back and forth across the high and low-turnover sectors. I do not want to exclude these workers from the analysis since their earnings experience may be quite different from that of workers with more obvious job histories. In the empirical analysis these workers will be grouped in their own category and are treated separately.

Table 3: : Type and Frequency of Employment History Patterns.

	Number of Workers	Initial Earnings	Percent Workers	Proportion that includes at least one Industry Transition	Average Number of Jobs	Average Time Out of Labor Market (in Quarters)
High Turnover	3,930	\$2,810	32.80%	53.90%	3.54	4.35
High to Low Turnover	2,512	\$2,764	20.96%	50.37%	3.52	4.24
Low Turnover	2,098	\$3,304	17.51%	14.53%	1.44	1.01
Low to High Turnover	1,079	\$2,954	10.79%	63.70%	3.85	4.79
Multiple Transitions	2,150	\$2,808	17.94%	71.67%	5.01	5.77
Source: Own Calculations from Maryland UI data.						

Table 3 provides information about the types and frequency of the employment patterns that emerge from the discussion above. Each row represents a different type of employment pattern based on the characteristics of the jobs held by each worker during the first seven years of potential labor market experience. The columns provide information on the number of workers that fall inside each type of employment pattern, the average earnings at time of entry into the labor market, the proportion that go through an industry change, their average number of jobs and finally the average time spent out of the labor market.

The table shows that approximately 33% of workers that enter the labor market through the high-turnover sector remain there. Full-quarter earnings for these workers average a total of \$2,810 when they first enter the labor market. This is significantly below the \$3,304 earned by workers that enter through the low-turnover sector and highlights the potential endogeneity between the type of entry and worker unobserved productive characteristics. Workers in the high-turnover sector are significantly more mobile and spend more time in activities outside of the labor market than workers with jobs in the low-turnover sector. On average, workers with jobs in the high-turnover sector will hold 3.5 jobs paying at least 70% of the full-time full-quarter minimum wage during the first seven years after entry in the labor market and will spend over a year in activities outside of the labor market. By contrast, workers with jobs in the low-turnover sector find more stable jobs. They are less mobile holding on average 1.4 jobs of similar characteristics and spending one quarter in out of market activities.

Transitions across sectors are also common in the data. Approximately 11% of workers start-off their careers in the low-turnover sector only to transition to the high-turnover sector. On average these workers do not appear to be much different from those that never leave the low-turnover sector. Approximately 21% follow the opposite path. These workers first find a job in the high-turnover sector but eventually transition into a job in the low-turnover sector. Finally, approximately 18% of the employment histories are characterized by multiple transitions across sectors. The last two set of workers do not appear to be much different from those that enter and remain employed in the high-turnover sector.

3 The Complexity of Career Earnings Growth

In this section I examine whether jobs in the high-turnover sector offer the same possibilities of career advancement as jobs in the low-turnover sector. Jobs in the high-turnover sector may offer workers few possibilities to learn the skills or abilities that allow workers to move up to higher paying jobs. These workers are easily replaced and as a result may end up cycling through a series of dead-end jobs without experiencing much earnings growth. By contrast, jobs in the low-turnover sector may help workers build those skills and abilities that allow them to move to jobs where they have a comparative advantage. In this case job transitions may lead to significant earnings growth as workers go through a series of stepping-stone jobs.

To examine these questions, I use an econometric approach that follows that of Topel & Ward (1992). It involves the empirical decomposition of earnings growth over the life cycle into a component due to job transitions and one due to within job growth. The later is computed implicitly as the difference between total earnings growth and growth from transitions. In order to examine whether these patterns differ with the sector of employment I break up the analysis by type of employment history.

More specifically, given longitudinal data on worker's earnings and employment histories I first compute, for each individual, the wage growth that is due

solely to changing jobs. For example, consider an individual in job $j - 1$ at time $t - 1$. The individual switches jobs so that they are in job j at time t . The estimate of between-job growth for this particular transition is given by:

$$E(w_{j,t} - w_{j-1,t-1} | w_{j,t+1}, w_{j-1,t-2}) = w_{j,t+1} - w_{j-1,t-2} - E(w_{j,t+1} - w_{j,t}) - E(w_{j-1,t-1} - w_{j-1,t-2}) \quad (1)$$

Note that the first two terms of the right hand side of this equation do not include the entry wage in job j , given by $w_{j,(t+1)}$, nor the exit wage in job $(j - 1)$, given by $w_{j-1,t}$. This stems from the fact that the beginning and end of each job are known to occur within particular three-month intervals and therefore recorded earnings do not provide a valid estimate of the wage. To avoid this problem I restrict the analysis only to jobs that last at least one full quarter and the entry and exit earnings are dropped. The last two terms on the right of equation (1) correct for the expected wage growth during the last quarter of the old job ($j-1$) and the first quarter of the new job (j). I estimate these terms from a standard wage regression that includes terms for tenure, experience as well as worker and firm characteristics. Total earnings growth is computed as the change in earnings between two given points.

Table 4: Career Wage Growth for Young Men: Within and Between

	Experience Interval (in Years)				
	0-2.5	2.5-5	5-7.5	7.5-9	0-9
Average Wage Change at Job Transitions	0.126 (0.001)	0.036 (0.002)	0.013 (0.002)	0.021 (0.004)	0.076 (0.001)
Cumulative Wage Growth at Transitions	0.159 (0.001)	0.026 (0.001)	0.006 (0.001)	0.003 (0.001)	0.193 (0.002)
Average Wage Change	0.055 (0.000)	0.017 (0.000)	0.012 (0.000)	0.008 (0.000)	0.026 (0.000)
Cumulative Wage Growth	0.503 (0.001)	0.172 (0.001)	0.113 (0.001)	0.039 (0.001)	0.809 (0.002)

Source: Own Calculations from MD UI data. Standard errors in parenthesis.

The first row of Table 4 reports average wage growth at job transitions during the first 9 years of potential labor market experience based on Table 4. The row is broken down by experience interval. Standard errors are presented in parenthesis. No distinction is made at this point for the type of employment history. Column 5 shows that the typical job change during this career phase is associated with a 0.076 increase in an individual's log quarterly earnings. This should be compared with an average wage growth per quarter of 0.026 and indicates that on average earnings growth from job transitions exceeds quarterly earnings growth within firms. In other words, on average workers that switch jobs do so because they stand to gain from an improved match. Average gains decrease over time so that the increase is close to 30% as large for experienced workers, those with 7.5-9 years in the labor market. The second and fourth rows report cumulative wage growth at transitions and over all respectively. They show that over time, wage changes at job transitions account for a significant portion of early career wage growth. On average total wage growth during the first 9 years of labor market experience is about 0.809, of which 25%

(0.193/0.809) is accounted for by job transitions.⁷

These results are similar to those reported in Topel & Ward (1992).⁸ They highlight two important facts. First, job transitions contribute significantly to career earnings growth. This forms the bases for the interpretation that job search and matching are important to career growth. Second, the accumulation of tenure and experience account for the largest share of earnings growth. Note however, that it is not possible to determine the impact that ongoing educational efforts have on these outcomes since it is not observed in these data. As a result, earnings growth from tenure, experience and job transitions capture all forms of human capital accumulation –including formal education, as well as the effects of improved job matches. Similarly, changes in the amount of labor supply may contribute to earnings growth both within and across jobs. In any case, it does not take from the thrust of the argument that a new job match may allow workers to take advantage of their increased availability or new set of skills.

Results in Table 4 summarize average wage growth across all workers and types of employer. However, returns to job mobility are likely to vary widely across the population as a result of worker and firm heterogeneity. Workers with jobs in the high-turnover sector might not experience significant earnings from mobility. These workers might transition through a series of jobs with few chances for improvement and career growth. It is also possible that the distribution of skills is not equally distributed across sectors of employment. This might lead to different opportunities for earnings growth from job mobility. In other words, the estimates in Table 4 include persons who gain little or nothing from switching jobs as well as those that gain significantly. The below average return to job mobility experienced by some workers is likely to be offset by the returns experienced by other. Focusing on simple averages can hide important differences across groups of workers and sectors of employment.

Table 5 explores differences in career earnings across sectors of employment. As before, Table 5 reports the average and cumulative wage growth at job transitions during the first 9 years of potential labor market experience. The first column reports averages for workers whose employment history is in the high-turnover sector. The typical job change for these workers is associated with a 0.053 increase in an individual’s log quarterly earnings. This is well below the 0.119 and 0.136 average increase experience by workers that successfully transition to the low-turnover sector and those with employment histories in the low-turnover sector. The difference in the cumulative effect as a share of total earnings growth over a nine-year period is significant. Job transitions account for approximately 15% of total early career wage growth for workers employed in the high-turnover sector (0.118/0.765). By contrast, job transitions account for 33%, 31% and 30% for workers that successfully transition to the low-turnover

⁷Cumulative wage growth is the sum of positive and negative wage changes during a specific experience interval while the average is the mean of all transitions during that interval. The different unit of analysis, jobs versus individuals, can lead to the result that the average transition is higher than the cumulative transition.

⁸They estimate that job transitions contribute approximately one-third of total earnings growth during the first 10 years of labor market experience. Just slightly above my average.

sector, those that transition from low to high and those that switch back and forth respectively. The only group of workers that cumulative stands to gain less over the nine-year period are those employed in the low-turnover sector. Job transitions for these workers account for just about 8% of total earnings growth. This is not surprising given the relatively low mobility of these workers.

Table 5: Career Wage Growth for Young Men: Within and Between

	Employment History				
	H	HL	LH	L	BF
Average Wage Change at Job Transitions	0.053 (0.002)	0.119 (0.002)	0.085 (0.002)	0.136 (0.005)	0.062 (0.002)
Cumulative Wage Growth at job Transitions	0.118 (0.003)	0.300 (0.004)	0.243 (0.006)	0.062 (0.002)	0.248 (0.004)
Average Wage Change	0.025 (0.000)	0.029 (0.000)	0.026 (0.000)	0.021 (0.000)	0.028 (0.000)
Cumulative Wage Growth	0.765 (0.003)	0.906 (0.003)	0.780 (0.005)	0.763 (0.005)	0.832 (0.004)

Source: Own Calculations from MD UI data. Standard errors in parenthesis.

These results highlight the difference labor market experience of different groups of workers. In general, jobs in the high-turnover sector are more volatile and workers exhibit smaller job-to-job advancement. Earnings growth from switching jobs is but a fraction of that experienced by other workers. However, it is important to note that total earnings growth remains high for workers that stay in the high-turnover sector. The results indicate that total cumulative earnings growth from the combination of tenure, experience and job transitions is similar to that of workers employed in the low turnover sector, 0.765 vs. 0.783 log points. Given that on average these workers accumulate less experience, these results indicate that the accumulation of earnings growth with tenure is sufficiently high as to yield similar earnings growth over time. So, while worker employed in low-wage high-turnover industries such as those found in the fast food industry or retail do not exhibit the same degree of job-to-job improvement, they do however exhibit similar earnings growth rates over time. Having said this, it is also important to note that these workers start off from a lower initial wage; so, while earnings growth as a proportion of initial earnings is similar for both sets of workers the earnings differential increases in absolute terms over time. The earnings differential between these two sets of workers increases from an average of \$494 dollars per quarter at time of first entry into the market to approximately \$865 at the end of the ninth year.

It is important to note that the simple accumulation of labor market experience is the single most important contributor to earnings growth for workers in this age group. This is true regardless of the sector of employment and explains why earnings growth patterns follow similar paths. These results indicate that entry level jobs provide a means to acquire basic labor market skills regardless of the sector of employment. A job at McDonalds may provide a basic set of skills as much as a job at a financial services firm. It is also possible that earnings growth between the ages of 18 and 25 is partly the result of increases in labor supply. Assuming the supply of labor follows similar growth paths across sectors of employment then as workers transition into full time jobs their earn-

ings growth will also follow similar paths. Finally, educational attainment may also increase proportionally across sectors. Young workers are often enrolled in school. As their educational attainment increases so might their earnings.

This section has showed that job transitions do not offer as many opportunities for job advancement in the high-turnover sector and that the earnings differential increases over time in absolute terms. However, workers that remain engaged in the high-turnover sector can experience similar earnings growth rates through the accumulation of experience and tenure. In this sense, continued participation in the labor market is particularly important for these workers. These results indicate that the idea that jobs in low-wage high-turnover industries do not offer opportunities for job advancement is not corroborated by these data. Young men that find jobs high turnover service or retail jobs can be expected to experience significant earnings growth as long as they remain engaged in the labor market. However, their earnings with respect to workers in low-turnover industries will drop over time.

I should note one important caveats. These results are based on a selected sample of workers; workers that are more likely to remain engaged in the labor market. These workers may have experienced above average wage increases or above average job matches. As a result, wage effects should be interpreted as an upper bound on the returns turnover from both industry and regular job transitions have on career earnings. Furthermore, this bias may not be symmetrical across sectors of employment. Workers in the low-wage high turnover sector might be more likely to drop out of the labor market than those in the relatively high-wage low turnover sector.

The next section examines whether there are long term negative effects from job instability on adult earnings after controlling for unobserved ability and job-match quality.

4 A Model of The Long Term effects of Labor Market Entry and Mobility

The empirical decomposition described above provides a rich characterization of career earnings growth in youth labor markets. It highlights differences in earnings growth patterns for workers with different types of labor market entry. In this section I discuss a model of adult earnings that takes into consideration the endogenous determination of mobility in response to unobserved worker and firm characteristics to ascertain whether job instability or the type of labor market entry have negative consequences on adult earnings.

The model is motivated by empirical literature that examines the effects of early job market instability on the adult earnings of workers [Neumark (1998), Gardecki & Neumark (1998) and Light and McGarry (1998)]. These models are based on the idea that job instability can have negative consequences on adult earnings because workers that transition aimlessly from job to job might not develop the skills or attitudes that would lead to improved earnings. Further

more, employers might perceive this “floundering about” as a signal for lack of ability, drive or skills and might discount adult earnings accordingly.⁹

However, addressing this question poses several econometric problems. In particular, job-matching models suggest that the statistical association between adult wages and early job stability may not provide a good estimate of the effects job stability has on adult earnings. The reason is that job stability might be correlated with an individual’s unobserved ability, skills or drive as well as with the quality of the job match. High ability workers might be less mobile than low ability workers and workers that find a good job-match early on are less likely to leave that job. In this case, the positive correlation between these unobserved traits and more stable job histories will lead us to attribute to job stability what are in effect the returns to ability and job-match quality. We will incorrectly infer that employers reward stability or that individuals holding steady jobs develop valuable skills.

These types of effects could arguably also work in the opposite direction. Workers that switch jobs might be a selected sample of workers that stand to gain from switching jobs relative to those that stay behind. This may occur because they have found a better job match to their skills. In this case, the positive correlation between these unobserved characteristics and job mobility might lead us to infer that there is no value to early job stability, that any job is a good job and that there should be no effort made to keeping young workers in steady jobs.

The final direction of these contrasting effects is not known a priori and may even differ with the sector of employment. In some sectors mobility might be a way for high skilled workers to improve their lot, while in others high skilled workers may experience a comparative advantage in long tenured jobs.¹⁰

The wage model that I describe in this section seeks to explain how early market mobility and the type of entry affect adult earnings conditional on worker unobserved ability and job-match quality of early jobs. In the model, adult earnings are determined by the following equation:

$$w_i = \alpha S_{ij} + X_{it}\beta + \varepsilon_{ij} \quad (2)$$

where w is the adult wage of worker i , X is a vector of standard contemporaneous labor market characteristics included as controls such as tenure and experience. S is a vector measuring early job stability and the type of labor market entry. The final element in the model is the statistical residual of worker i employed at firm j (ε_{ij}).

The model is estimated separately by sector of employment. This allows me to ascertain whether early job stability has different effects in the high and low-turnover sector. Evidence of the relationship between early job market stability and adult earnings across different sectors can then be examined by exploring the correlations between the earnings outcome and a range of variables that account

⁹This might be thought of as a form of statistical discrimination.

¹⁰Gibbons & Katz (1992) and Neal (1999) are examples of these two different types of models.

for the labor market stability of youths. Included in the measure of labor market stability, S , are variables that capture prior labor market experience such as the number of prior jobs held and longest job held. It also includes a dummy for the type of entry sector. If early job instability has a scarring effect on adult earnings conditional on adult characteristics then α in equation (2) will capture this fact. If employers value early job stability then α will be negative when S is the number of prior jobs held and positive when S is the duration of the longest job held. If employers take the type of entry as a signal of the worker's ability and discount their earnings accordingly then α will be negative when S is a dummy for entry through the high-turnover sector.

The presence of unobserved ability and job-match quality as a determinant of mobility suggests that the error term in equation (2) consists of the following components:

$$\varepsilon_{ij} = \theta_i + \Psi_{i \sum j} + \xi_{ij}$$

where θ_i is a person specific worker fixed effect that controls for individual heterogeneity that may be correlated with both wages and early job stability. $\Psi_{i \sum j}$ is an unobserved measure of the quality of the job-match attained by worker i while employed in any firm j during the first five years after entry into employment. It is a measure of unobserved firm heterogeneity and job match quality of early jobs that might be positively correlated with current wages and early stability. However, the estimation of these effects presents me with a challenge. The model is cross-sectional in nature. It estimates an individual's wage as a young adult several years after entry into the labor market on a set of variables that are time-fixed in nature such as the number of prior jobs and longest prior job. I have only one wage observation per individual; their wage as adults. There is no way to estimate worker and firm fixed effects on the cross-sectional data without eliminating the effect that my variables of interest have on adult earnings.¹¹

To get around this problem I use a two-step estimation procedure. Step one involves the estimation of the worker and firm fixed effects using the full earnings history file. For this I first estimate a standard earnings regression with job fixed effects to get estimates of the joint worker-firm fixed effect, $(\theta_i + \Psi_{ij})$, for each job held during the five year post-entry period. This equation is estimated separately for each job. The time-varying regressors in the wage equation include a joint linear tenure-experience term as well as non-linear and independent tenure and experience terms. The wage regression is as follows:

$$w_{ijt} = \mathbf{b}_1 \mathbf{x}_{it} + \theta_i + \psi_{j(i,t)} + \varepsilon_{ijt}$$

where \mathbf{X} is the vector of time varying coefficients, θ_i is the fixed effect of worker i . $\psi_{j(i,t)}$ is the firm fixed effect experienced by worker i employed in firm j .

¹¹I could estimate worker and firm fixed effects directly if I were to consider the effects prior experience has on earnings in all jobs. However, I would no longer be estimating the effects of prior experience on adult earnings but rather on subsequent jobs. Instead I follow the same methodology as in Neumark (1998) and Light and McGarry (1998).

Finally, ε_{ijt} is the statistical residual.

For each worker I end up with a set of estimates, one for each of the firm pairings that they form over their early career. I then take the largest estimated value of the joint worker-firm fixed effect as a measure of the quality of the job-match attained during this period.¹² The interpretation of these effects is that they capture the worker’s average earnings growth due to unobserved ability and job-match quality:

$$\overline{\theta_i + \Psi_{i \sum j}} = \text{MAX}_{j=1}^n (\theta_i + \Psi_{ij})$$

With these estimates in hand it is straightforward to estimate model (2), with predicted $(\theta_i + \Psi)$ inserted as controls for worker ability and job-match quality. Normally one would have to correct standard errors in model (2) to account for the fact that I am using estimates derived from the first step as opposed to the true values. However, it is not necessary to do so in this case since the estimates are the actual fixed effects for each individual.

5 Results

Results from estimating this model are presented in Table 6 and Table 7. Table 6 reports results from an OLS regression with no controls for worker and firm fixed effects. Table 7 reports results from the second step of the two-step model. The contrast between estimation procedures provides information regarding the direction of the omitted variable bias and the process by which workers decide to switch jobs. Both tables report estimates for the type of entry and prior number of jobs held. In these tables I also include controls for longest period of non-employment, total non-employment, contemporaneous experience, longest prior job and contemporaneous tenure. Results are presented first for all individuals and then as a function of the sector where workers end up as adults. Results are also presented for two different entry cohorts, 1985 and 1990. These cohorts enter the labor market at very different points of the economic cycle; the first during a period of relative stability, the second during a period characterized by a downturn in economic activity. Their analysis highlights the effects that the economic environment might have on earnings trajectories and mobility. All regressions include year dummies as well as a measure of the current unemployment rate. These capture demand shocks to the local economy that may affect adult earnings. Also included but not reported are controls for contemporaneous worker and firm characteristics including one-digit industry, firm size class and the individual’s age. All tables present population weighted estimates based on race, year and quarter of entry.¹³

¹²Other measures of early match quality that I considered include the average fixed effect over this period or the fix effect of the longest job held during this period. All are highly correlated and lead to qualitatively similar results.

¹³Weighted and unweighted results are qualitatively the same although weighted results are some what stronger.

OLS estimates in Table 6 reflect some of the findings of the previous section. On average, prior mobility has strong and positive effects on adult earnings. Column (1) shows that mobility –as captured by the number of prior jobs held, has a positive and cumulative effect on adult earnings although at a somewhat decreasing rate. Columns (2-6) reveal some of the differences across sectors of employment and entry cohorts. In particular, columns (2-4) show that the effects of mobility on earnings are not significant for workers employed in the low turnover sector or those that move back and forth across sectors. These results suggest mobility is a relatively ineffective way to move up the career ladder in industries characterized by low turnover and relatively high wages – e.g. manufacturing, communication and finance. By contrast, mobility seems to provide a means up that ladder in industries characterized by high turnover and relatively low wages –e.g. retail, construction or hotel services. Mobility might be a way for relatively high ability workers to improve their lot in these industries.

Analysis for the 1985 and 1990 cohorts, Columns (5) and (6), highlight the effects that the economic cycle have on mobility estimates and career paths. Column (6) shows that the coefficients on the 1990 cohort are not as strong as those for the 1985 cohort; a period of economic growth. The implication is that higher paying jobs are not as easy to come by during a downturn. Employers are reluctant to hire new workers and the opportunities for job improvement may be relatively difficult to come by.

Looking at other variables of interest, Table 6 shows that the type of labor market entry –whether a high or low turnover entry, appears to have some effect on the employer’s valuation of their workers. This is particularly true for workers employed in the high-turnover sector. Column (4) shows average earnings are .039 log points higher for workers that initiate their careers in the low turnover sector. Systematic differences in the underlying characteristics of these workers are likely driving some of these results.

The other estimated coefficients are standard. Contemporaneous experience shows strong positive effects on adult earnings. Note however that the importance that employers confer to experience is balanced against the finding that on average prior periods of non-employment and total non-employment do not seem to have negative effects on adult earnings. This is somewhat surprising but consistent with similar findings by Antel (1991). The implication is that workers in the sample are engaged in some form of skill building activity during their periods of non-employment or that lengthier job search activities lead to higher paying jobs. Tenure coefficients show some interesting patterns. First, returns to tenure are relatively low compared with returns to experience. That is, young workers experience relatively low rates of firm specific human capital accumulation. Most human capital accumulation is generic. Second, returns to tenure are relatively high in high turnover firms. This is consistent with the idea that workers that prove to be a good match in high turnover firms see their earnings revised and grow relatively fast.

Finally, the coefficient on the black dummy is strong, negative and of similar magnitude across specifications. Estimates show earnings are on average

between .117 and .166 log points lower for these workers. Regressions by race, Tables (8) and (9) indicate that these effects are not due to differences in returns to experience, tenure or mobility between the populations. In other words, they are not a result of diverging earnings paths. Possible explanations include a persistent gap in underlying educational attainment, occupational segregation or they could also reflect wage discrimination that persists over time.

Overall, estimates of the main variables of interest, number of jobs and longest job held, are consistent with the finding in Topel & Ward (1992). They suggest that there is an important role for job matching and mobility in career earnings growth particularly in high turnover sectors. However, they are inconsistent with Neumark (1998), which find a small negative but significant effect on OLS estimates of the number of prior jobs held. Differences in data and the sample selection criteria are likely to play an important role in explaining these differences. There are two reasons for this. First, Neumark's results are based on data from the NLSY. These data allow Neumark (1998) to date the time of entrance into the labor market to the point where the individual no longer reported schooling other than a two-year college. The same is not true in my sample. All 18 year old with strong labor market attachment are included. Consequently, it is likely that there are significant underlying differences in age distribution and ongoing educational efforts between the two populations. As a result, it is possible that I might be overestimating the returns to mobility by attributing to this variable what are in fact the returns to changes in underlying education and labor supply.

Second, part-time and short duration jobs get an uneven treatment in the two samples. I restrict the analysis to jobs that last at least 3 months and pay more than 70% of the minimum wage salary. By contrast, Neumark's job count measure includes the total number of jobs ever reported by the individual. This job count measure is likely to be negatively correlated with job quality and unobserved worker ability in which case he might be attributing to mobility what is in fact the impact of these unobservable characteristics.

Both sets of OLS estimates are likely to be affected by omitted variable bias. Indeed that is the reason for attempting a two-step strategy. The introduction of worker and firm fixed effects eliminates bias from unobserved job-match quality and ability or drive. Other sources of heterogeneity will likely remain. For instance, job fixed effects may not fully account for earnings growth as a result of ongoing educational efforts and increased labor supply. This might affect the interpretation of results in as much as these activities are positively correlated with mobility. With these caveats in mind, Table 7 reports results from the second step of the two-step estimation procedure that includes a measure of the worker and firm fixed effects. Table 7 reports estimates for all workers in the sample, column (1), by sector of employment, columns (2-4) and finally for the 1985 and 1990 entry cohorts, columns (5-6). The model is the same I estimated before but I now include a measure of worker and firm fixed effects for each individual.

Table 7 shows that controlling for unobservable worker and firm fixed effects reduces point estimates of mobility and type of entry considerably. In most cases

mobility estimates become negative. This is generally true for all specifications and indicates that the selection process underlying the mobility decision can explain the returns to mobility that we found in Table 6. Intuitively, workers that switch jobs do so because they find a better job match to their skills or abilities. Controlling for these effects eliminates the positive returns to mobility.

However, there are significant differences across sectors. Columns (3-4) indicate that prior mobility has a negative and significant impact for workers employed in the low-turnover sector. The data indicate that employers in low turnover firms and industries place a premium on workers with a stable job history. Individuals with five job transitions stand to earn on average 0.22 log points less than a comparable worker with no prior mobility. This represents a considerable reduction in earnings from an unstable early market history. Employers might discount earnings of relatively mobile workers if they perceive this to be a signal of their ability, drive or commitment to the firm. It is also possible that relatively mobile workers fail to acquire the skills that are valued in these types of firms.

By contrast, mobility does not have significant negative effects for these workers employed in the high turnover sector. Employers in high turnover firms do not put a premium on workers with more stable job histories. In hindsight, it seems counter intuitive to expect employers to reward or value workers with a stable job history when their firms have a history of unstable jobs. It is also possible that the jobs and technologies in place in these firms might be such that there is no return to the types of skills associated with this trait.

Remaining coefficients do not experience much change relative to OLS estimates. In this sense, it is striking to note that the black wage differential although reduced remains strong. This indicates that black workers are more likely to transition to a low wage job as adults even after controlling for experience, periods of non-employment and early period fixed effects. Regressions by race, Tables 8 and 9 indicate that on average mobility is discounted at a higher rate particularly for highly mobile black workers lending some support to this interpretation. It is also possible that the labor supply or their educational attainment follow different paths. Other potential explanations for this black-white differential include differences in access to job networks, search technologies as well as discrimination.

6 Conclusions

This paper used longitudinal earnings history files from the State of Maryland to examine the effects that early market instability has on the adult earnings of young workers. The paper shows that on average mobility is a way for workers to move up the wage ladder. However, mobility also has negative effects on some workers once we control for ability and job match quality components. This could explain the apparently diverging results found in studies that focus on different groups of workers. I find evidence that employers in the low-turnover sector discount earnings of workers who displayed early market instability. The

same is not true for workers employed in the high-turnover sector. There are two interpretations for this. First, employers who value stability in their workplaces might discount the earnings of workers who displayed an earlier propensity to move. Second, it is also possible that workers with unstable job histories fail to develop particular skills or behaviors that are useful in firms that require a committed workforce. By contrast, I find no evidence that mobility has negative effects for workers that remain employed in the high turnover sector. In hindsight, there seems to be no reason for employers that have a history of short duration jobs to discount earnings of employees who displayed a high propensity to move. Differences in technologies of production might drive some of these differences.

The analysis shows that there is considerable selection regarding the decision to switch jobs regardless of the sector of employment. Workers that switch jobs gain considerably from an improved job match. This is particularly true for workers that successfully exit the high-turnover sector. Earnings growth for these workers over a nine-year period is approximately 18% higher relative to workers that remain in the high-churn sector. This is not to say that jobs in high-churn industries do not provide considerable opportunities for earnings growth. The analysis shows that earnings growth rates are similar to those of workers employed in the low turnover sector and come primarily through the accumulation of experience. However, the lower starting wage suggests that over time earnings for these workers lag behind that of workers employed in the low turnover sector.

It is important to recognize some of the limitations of this paper. First, the data used for the analysis necessarily restricts the analysis to a selected sample of workers, those that remain engaged in the labor market. In this sense returns to mobility only provide an upper bound of the actual returns to mobility. Second, I was not able to consider the role continued education plays in career earnings growth. In this sense, I was not able to disentangle whether job advancement comes about from underlying improvements in formal education or from simple participation in the labor market.

References

- Connolly, Helen and Peter Gottschalk 2001 "Stepping Stone Jobs: Theory and Evidence." Boston College Working Paper.
- Gardecki, Rosella and David Newmark 1998 "Order from Chaos? The effects of Early Labor Market Experiences on Adult Labor Market Outcomes." *Industrial and Labor Relations Review*, Vol. 51, no. 2, January, pp. 299-322
- Glazer, Nathan 1993 "A Human Capital Policy for the Cities." *The Public Interest*, No. 112, Summer, pp. 27-49
- Hall, Robert E. (1982) "The Importance of Lifetime Jobs in the U.S. Economy," *The American Economic Review* 72 (September):716-724.
- Hamilton, Stephen 1990 *Apprenticeship for Adulthood* (New York: The Free Press).
- Heckman, James 1993 "Assessing Clinton's Program on Job Training, Workfare and Education in the Workplace." NBER Working Paper No. 4428, August.
- Lerman, Robert I., and Hilliard Pouncy 1990 "The Compelling Case of Youth Apprenticeship." *The Public Interest*, No. 101, Fall, pp. 62-77
- Murphy, Kevin and Welch, Finis (1992) "The Structure of Wages". *The Quarterly Journal of Economics*, Vol. 107 (February): 285-327.
- Neal, Derek 1999 "The Complexity of Job Mobility Among Young Men." *Journal of Labor Economics*, 1999, vol. 17, no. 2.
- Newmark, David 1998 "Youth Labor Markets in the U.S.: Shopping Around vs. Staying Put." NBER Working Paper No. 6581, May
- Osterman, Paul 1980 *Getting Started: The Youth Labor Market* (Cambridge, MA: The MIT Press).
- Stern, David, Neal Finkelstein, James R. Stone, John Latting and Carolyn Dornsife 1994 "Research on School-to-Work Transition Programs in the United States." National Center for Research in Vocational Education, March.
- Topel, Robert H. (1986) "Job Mobility, Search, and Earnings Growth: A Reinterpretation of Human Capital Earnings Functions," In *Research in Labor Economics* 8 (A):199-233.
- Topel, Robert H. (1991) "Specific Capital, Mobility, and Wages: Wages Rise with Job Seniority," *Journal of Political Economy* 99 (February): 145-176.

Topel, Robert H. and Ward, Michael (1992) "Job Mobility and the Careers of Young Men," *Quarterly Journal of Economics* (May):439-479.

Table 6: Effects of Early Market Experience on Adult Earnings: OLS Estimates for Men

Dependent Variable: Log Adult Earnings (Real quarterly earnings) All Individuals with some observation between year 7 and year 9						
Variable	All (1)	Multiple Transitions (2)	Low-Churn Sector (3)	High-Churn Sector (4)	1985 Cohort (5)	1990 Cohort (6)
Entry low	0.025** (0.009)	0.042 (0.023)	-0.008 (0.016)	0.039* (0.016)	0.028 (0.022)	0.015 (0.015)
Longest Job Held	0.003 (0.002)	-0.002 (0.004)	0.001 (0.003)	0.005* (0.003)	0.007 (0.005)	0.000 (0.003)
Prior Number of Jobs Held						
One	0.063*** (0.013)	0.042 (0.039)	0.023 (0.021)	0.084*** (0.020)	0.082* (0.035)	0.084*** (0.022)
Two	0.084*** (0.017)	0.055 (0.044)	0.031 (0.031)	0.108*** (0.027)	0.114* (0.047)	0.073* (0.029)
Three	0.094*** (0.025)	0.046 (0.055)	0.046 (0.040)	0.136*** (0.042)	0.215** (0.079)	0.069 (0.039)
Four	0.080* (0.034)	0.067 (0.064)	0.039 (0.068)	0.039 (0.058)	0.102 (0.080)	0.065 (0.049)
Five +	0.118** (0.038)	0.026 (0.073)	0.021 (0.075)	0.252*** (0.064)	0.334*** (0.062)	0.114* (0.055)
Longest period of non employment	0.005 (0.003)	0.000 (0.006)	0.003 (0.006)	0.008 (0.005)	0.02 (0.013)	0.001 (0.005)
Total Non-Employment	0.000 (0.002)	0.003 (0.004)	0.005 (0.004)	-0.005 (0.004)	-0.015 (0.010)	0.000 (0.003)
Contemporaneous Experience	0.015*** (0.002)	0.016*** (0.003)	0.017*** (0.003)	0.014*** (0.003)	0.011 (0.006)	0.018*** (0.003)
Contemporaneous Tenure	0.006*** (0.001)	0.004 (0.002)	0.004 (0.002)	0.008*** (0.002)	0.006 (0.004)	0.005*** (0.002)
Black	-0.153*** (0.011)	-0.117*** (0.027)	-0.131*** (0.017)	-0.166*** (0.016)	-0.166*** (0.016)	-0.166*** (0.016)
Unemployment Rate	-0.007 (0.012)	-0.023 (0.032)	0.03 (0.018)	-0.035 (0.019)	-0.019 (0.046)	-0.034 (0.019)
Constant	8.042*** (0.170)	7.879*** (0.508)	7.845*** (0.256)	8.055*** (0.280)	8.055*** (0.280)	8.055*** (0.280)
N	11,940	2,145	4,581	5,214	3,895	2,072
R2	0.138	0.123	0.154	0.145	0.149	0.137

All regressions include controls for industry, firm size, worker's age and race.

Table 7: Effects of Early Market Experience on Adult Earnings: Two-Step Estimates for Men

Dependent Variable: Log Adult Earnings (Real quarterly earnings) All Individuals with some observation between year 7 and year 9						
Variable	All (1)	Multiple Transitions (2)	Low-Churn Sector (3)	High-Churn Sector (4)	1985 Cohort (5)	1990 Cohort (6)
Entry low	0.019* (0.009)	0.026 (0.022)	0.018 (0.015)	0.015 (0.015)	0.019 (0.021)	0.011 (0.014)
Longest Job Held	-0.001 (0.002)	0.000 (0.004)	-0.005 (0.003)	0.001 (0.002)	-0.001 (0.005)	-0.001 (0.003)
Prior Number of Jobs Held						
One	-0.016 (0.013)	-0.044 (0.040)	-0.044* (0.020)	0.004 (0.019)	-0.001 (0.032)	0.009 (0.023)
Two	-0.040* (0.017)	-0.061 (0.046)	-0.093** (0.028)	-0.014 (0.027)	-0.024 (0.045)	-0.039 (0.029)
Three	-0.061** (0.024)	-0.096 (0.055)	-0.115** (0.037)	-0.012 (0.040)	0.031 (0.081)	-0.071 (0.038)
Four	-0.108*** (0.033)	-0.087 (0.065)	-0.167** (0.062)	-0.140* (0.055)	-0.096 (0.065)	-0.100* (0.049)
Five +	-0.103** (0.037)	-0.162* (0.070)	-0.220** (0.071)	0.059 (0.063)	0.357*** (0.057)	-0.089 (0.053)
Longest period of non employment	0.002 (0.003)	-0.002 (0.006)	0.000 (0.006)	0.006 (0.005)	0.016 (0.013)	-0.002 (0.005)
Total Non-Employment	0.000 (0.002)	0.003 (0.004)	0.007 (0.004)	-0.004 (0.003)	-0.013 (0.010)	0.001 (0.003)
Contemporaneous Experience	0.016*** (0.002)	0.014*** (0.003)	0.019*** (0.003)	0.016*** (0.002)	0.015* (0.006)	0.018*** (0.003)
Contemporaneous Tenure	0.003** (0.001)	0.003 (0.002)	0.000 (0.002)	0.005** (0.002)	0.002 (0.004)	0.003 (0.002)
Black	-0.133*** (0.011)	-0.106*** (0.026)	-0.111*** (0.016)	-0.148*** (0.016)	-0.145*** (0.019)	-0.107*** (0.025)
Unemployment Rate	-0.007 (0.012)	-0.014 (0.031)	0.026 (0.016)	-0.034 (0.018)	-0.027 (0.045)	-0.040* (0.018)
Constant	5.873*** (0.138)	6.332*** (0.349)	5.487*** (0.195)	6.052*** (0.207)	6.262*** (0.254)	5.967*** (0.389)
Fixed Effects ¹	0.279*** (0.014)	0.233*** (0.038)	0.303*** (0.017)	0.275*** (0.020)	0.252*** (0.024)	0.288*** (0.029)
N	11,940	2,145	4,581	5,214	3,895	2,072
R ²	0.207	0.18	0.237	0.206	0.214	0.197

All regressions include controls for industry, firm size, worker's age and Year.

¹ Fixed Effects estimates from first step.

Table 8: Effects of Early Market experience on Adult Earnings: OLS Estimates for Men by Race

Dependent Variable: Long Adult Earnings (real quarterly earnings) All individuals with some observation between year 7 and year 9									
Variable	White					Black			
	All	Multiple Transitions	Low-Churn Sector	High-Churn Sector	All	Multiple Transitions	Low-Churn Sector	High-Churn Sector	All
Entry low	0.012 (0.009)	0.032 (0.022)	-0.002 (0.016)	0.009 (0.016)	0.059* (0.024)	0.050 (0.066)	-0.022 (0.041)	0.105** (0.040)	
Longest Job Held	0.003 (0.002)	-0.004 (0.004)	0.001 (0.003)	0.007** (0.003)	0.003 (0.004)	0.002 (0.011)	0.001 (0.007)	0.000 (0.006)	
Prior Number of Jobs Held									
One	0.055*** (0.013)	0.054 (0.045)	0.030 (0.021)	0.073*** (0.020)	0.085** (0.031)	-0.031 (0.080)	0.011 (0.060)	0.110* (0.049)	
Two	0.073*** (0.018)	0.069 (0.050)	0.037 (0.030)	0.095** (0.029)	0.112** (0.040)	-0.068 (0.105)	0.041 (0.077)	0.126* (0.060)	
Three	0.107*** (0.024)	0.090 (0.057)	0.042 (0.041)	0.176*** (0.042)	0.079 (0.066)	-0.079 (0.157)	0.090 (0.107)	0.054 (0.095)	
Four	0.096** (0.034)	0.099 (0.069)	0.055 (0.069)	0.075 (0.057)	0.008 (0.089)	-0.105 (0.175)	-0.057 (0.155)	-0.006 (0.130)	
Five +	0.111** (0.041)	0.060 (0.078)	0.007 (0.082)	0.297*** (0.072)	0.123 (0.087)	-0.066 (0.179)	0.210 (0.161)	0.111 (0.126)	
Longest period of non employment	0.007* (0.003)	0.004 (0.006)	0.003 (0.006)	0.014** (0.005)	-0.002 (0.008)	-0.005 (0.016)	0.002 (0.016)	-0.005 (0.010)	
Total Non-Employment	0.001 (0.002)	0.001 (0.004)	0.008* (0.004)	-0.005 (0.004)	-0.003 (0.006)	0.008 (0.013)	-0.004 (0.011)	-0.004 (0.007)	
Contemporaneous Experience	0.016*** (0.002)	0.017*** (0.003)	0.015*** (0.003)	0.017*** (0.003)	0.016*** (0.004)	0.016* (0.007)	0.022** (0.008)	0.011 (0.006)	
Contemporaneous Tenure	0.005*** (0.001)	0.002 (0.002)	0.004* (0.002)	0.009*** (0.002)	0.005 (0.003)	0.006 (0.007)	0.003 (0.005)	0.005 (0.004)	
Unemployment Rate	-0.018 (0.012)	0.001 (0.033)	0.003 (0.018)	-0.047* (0.020)	0.025 (0.031)	-0.162 (0.083)	0.131** (0.044)	-0.019 (0.042)	
Constant	8.118*** (0.094)	8.091*** (0.227)	8.064*** (0.154)	8.180*** (0.145)	7.772*** (0.210)	8.849*** (0.552)	7.131*** (0.332)	8.187*** (0.293)	
N	10349	1897	4025	4427	1591	248	556	787	
R2	0.101	0.113	0.132	0.099	0.193	0.226	0.297	0.179	

All regressions include controls for industry, firm size and worker's age.

Table 9: Effects of Early Market experience on Adult Earnings: Two-step Estimates for Men by Race

Variable	White					Black		
	All	Multiple Transitions	Low-Churn Sector	High-Churn Sector	All	Multiple Transitions	Low-Churn Sector	High-Churn Sector
Entry low	0.008 (0.009)	0.017 (0.021)	0.021 (0.015)	-0.010 (0.015)	0.045 (0.023)	0.036 (0.057)	0.008 (0.039)	0.071 (0.040)
Longest Job Held	-0.001 (0.002)	-0.002 (0.003)	-0.004 (0.003)	0.003 (0.003)	0.000 (0.004)	0.003 (0.009)	-0.002 (0.007)	-0.003 (0.005)
Prior Number of Jobs Held								
One	-0.018 (0.014)	-0.019 (0.046)	-0.035 (0.020)	-0.003 (0.020)	-0.011 (0.030)	-0.189* (0.083)	-0.060 (0.056)	0.027 (0.045)
Two	-0.041* (0.018)	-0.030 (0.051)	-0.084** (0.029)	-0.018 (0.029)	-0.036 (0.038)	-0.266** (0.099)	-0.086 (0.070)	-0.005 (0.059)
Three	-0.037 (0.024)	-0.031 (0.058)	-0.109** (0.039)	0.031 (0.041)	-0.109 (0.058)	-0.332* (0.129)	-0.100 (0.098)	-0.092 (0.088)
Four	-0.081* (0.034)	-0.038 (0.070)	-0.146* (0.064)	-0.097 (0.057)	-0.200* (0.085)	-0.346* (0.165)	-0.262 (0.163)	-0.199 (0.121)
Five +	-0.101* (0.041)	-0.109 (0.076)	-0.235** (0.078)	0.118 (0.071)	-0.100 (0.078)	-0.324* (0.158)	-0.017 (0.148)	-0.086 (0.120)
Longest period of non employment	0.004 (0.003)	0.000 (0.006)	-0.001 (0.006)	0.013** (0.005)	-0.002 (0.007)	0.005 (0.015)	0.000 (0.014)	-0.006 (0.010)
Total Non-Employment	0.001 (0.002)	0.001 (0.004)	0.009* (0.004)	-0.006 (0.004)	0.000 (0.005)	0.004 (0.013)	0.002 (0.010)	0.000 (0.007)
Contemporaneous Experience	0.016*** (0.002)	0.015*** (0.003)	0.017*** (0.003)	0.017*** (0.003)	0.018*** (0.004)	0.016* (0.006)	0.024** (0.007)	0.016** (0.006)
Contemporaneous Tenure	0.003* (0.001)	0.002 (0.002)	0.000 (0.002)	0.006** (0.002)	0.003 (0.003)	0.004 (0.006)	0.001 (0.005)	0.003 (0.004)
Unemployment Rate	-0.018 (0.012)	0.009 (0.032)	0.003 (0.017)	-0.049** (0.019)	0.024 (0.028)	-0.123 (0.076)	0.111** (0.040)	-0.010 (0.040)
Constant	6.073*** (0.146)	6.465*** (0.353)	5.774*** (0.206)	6.116*** (0.218)	5.249*** (0.318)	5.442*** (0.786)	4.749*** (0.479)	5.913*** (0.484)
Fixed Effects ¹	0.262*** (0.015)	0.203*** (0.037)	0.290*** (0.019)	0.267*** (0.021)	0.312*** (0.030)	0.400*** (0.077)	0.303*** (0.043)	0.269*** (0.046)
N	10349	1897	4025	4427	1591	248	556	787
R ²	0.167	0.16	0.21	0.161	0.269	0.341	0.368	0.234

All regressions include controls for industry, firm size and worker's age.